

Implicit Differentiation Homework

Name _____

Find dy/dx by implicit differentiation.

1. $8x^2 + y^2 = 10$

2. $x^4 + y^4 = 3$

3. $\sqrt{x} + \sqrt{y} = 100$

4. $5x^2 - xy - 4y^2 = 0$

5. $x^3 - xy + y^2 = 5$

6. $\sin x + 2 \cos 2y = 1$

7. $y = \sin(xy)$

8. $\tan y = x$

9. Find $\frac{dy}{dx}$ for $x^3 + 2xy - y^2 = 11$ at $(2,3)$

10. Find $\frac{dy}{dx}$ for $\sqrt{xy} = 12y - x$ at $(9, 1)$

11. Find the standard form of the equation of the tangent line at the point $(1, -1)$ to the hyperbola $9x^2 - 4y^2 = 5$.

12. Write the equation of the tangent line to the graph of $xy + 16 = 0$ at the point $(-2, 8)$

13. Write the equations of the tangent line and normal line for $x^{2/3} + y^{2/3} = 5$ at $(8,1)$

14. Find $\frac{d^2y}{dx^2}$ in terms of x and y of $5x^2 - 2y^2 = 4$